

PHILADELPHIA MEDICAL TIMES.

PHILADELPHIA, FEBRUARY 2, 1878.

ORIGINAL LECTURES.

CLINICAL LECTURE ON THE RATIONAL TREATMENT OF TYPHOID FEVER.

Delivered at the University Hospital

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(Reported for the Medical Times.)

T. A., a sailor, aged 25, a native of Canada, was always hale and hearty until last summer, when he had an acute attack of dysentery, which lasted ten days. He fully recovered from this, however. On November 23, while cruising about Boston, he was taken ill a second time, and went to his bunk on the 24th, complaining of dizziness, general weakness, and aching in his bones. He was admitted to the hospital on November 27. His cheeks were flushed, his temperature $103\frac{1}{2}^{\circ}$, and his pulse 130. There were slight bronchial râles over his chest, and some cough. His tongue was yellowish-white; his bowels quiet, but easily moved. His belly was tympanitic. At first no spots showed themselves. There has been no epistaxis from the beginning of the attack. There was creeping fever in the morning, and always a considerable rise of temperature towards night. I began the treatment by the administration of full doses of quinia, thirty grains daily, at the rate of from five to ten grains every two hours, up to the production of marked cinchonism. This treatment, to my great surprise, had no influence whatever upon the fever, his temperature running up to 102° , 103° , and $103\frac{1}{4}^{\circ}$ on November 30. At once it became evident to me that this was a case of typhoid fever, and my treatment was accordingly modified.

On December 10, the eighteenth day of the attack, the temperature was as high as $104\frac{3}{4}^{\circ}$ in the evening, and the characteristic rose spots were out all over the abdomen. From the beginning of the fourth week, however, the improvement was rapid, and the temperature made a steady "dead drop," until on December 15 the thermometer in the mouth marked $99\frac{1}{2}^{\circ}$. On December 17 the pulse was 72, and the

temperature $98\frac{1}{2}^{\circ}$. The mind was clear, and but very slight nervous symptoms were present. On December 20, however, there was a sudden rise of temperature to 102° in the evening, running down to 101° the next morning, and then up again to 103° the following evening. This was evidently a relapse, the temperature-chart bearing a very close resemblance to that of the second week of the original attack. Later in the course of this relapse there was a sudden fall of temperature to $97\frac{1}{4}^{\circ}$ one morning, accompanied by a copious hemorrhage from the bowels. On that evening the temperature was $102\frac{1}{2}^{\circ}$. Since that time the patient has been slowly but steadily improving, until to-day his temperature is normal.

Before proceeding to discuss the treatment, let me call your attention very briefly to the symptoms of typhoid fever. First, as regards the temperature. This usually begins at $99\frac{1}{2}^{\circ}$ in the first week. As the disease progresses the temperature mounts up and drops down, falling each morning, but not quite so far as on the preceding morning, and rising each evening higher than on the preceding evening. The temperature on the seventh day generally stands at 101° in the morning and $102\frac{1}{2}^{\circ}$ in the evening. In typhus fever the rise of temperature is not gradual, but very rapid, running right up to 102° , 103° , 104° , even higher. In the second and third weeks of typhoid fever the temperature is fairly uniform, though high, with a daily variation of from $1\frac{1}{2}^{\circ}$ to 2° . At the end of the third week the temperature begins to fall, showing a correspondingly lower temperature each morning and evening. These data are of great value in discovering whether the fever is running its proper course. In malarial fever there is a complete remission, or intermission, according to the type of the fever. This is never the case in typhoid fever.

The other most characteristic symptoms of typhoid are those connected with the abdomen. The belly is usually very much swollen and tympanitic. There is either constant diarrhoea or an irritable state of the bowels, with cutting abdominal pains. As regards nervous symptoms, in the second week there is usually listlessness, dulness, and hebetude. The patient desires to be let alone. At night there is, perhaps, muttering delirium, or even violent excite-

ment. The eyes are almost entirely closed. There is frequent twitching of the muscles. The tongue is tender and moved with pain. There is loathing of food, but rarely any vomiting. In the second and third week the pulse usually rises from '96 up to perhaps as high as 120 beats per minute. The frequency of the pulse, however, is not as great as in typhus and scarlet fever. The breathing is shallow and frequent, with some sonorous râles, perhaps, over the chest. The eruption commonly appears on the seventh or eighth day, and consists of spots of a rose-red color about the size of the finger-nail, seen usually on the belly somewhere between the nipple and umbilicus. These spots are but slightly, if at all, elevated above the surface of the skin. The spots are sometimes entirely absent throughout the fever. There is no proportion between the violence of the disease and the amount of eruption. One of the characteristic symptoms of this fever is profuse epistaxis; you see that this was entirely absent in the present instance. There is very rarely excessive thirst; the mind is usually too much dulled in its sensations.

The most widely different views have been expressed as regards the treatment of this disease. Each view has had, for the time being, at least, its advocates. This divergence of opinion is very easy of explanation, since the disease may be entirely different in different epidemics. In some epidemics there may be very great mortality. Others may be comparatively mild. These statements are true of all epidemic diseases. I will not, therefore, mention any of the specific treatments. Typhoid fever, too, more than almost any other disease, is modified by personal idiosyncrasies. It is one of the longest of specific fevers, and, consequently, taxes the strength to an unusual extent. If it be among the poor, the mortality, for these very reasons, may be exceedingly great, much more so than if the epidemic had attacked one of the higher classes of society.

The basis of our intelligent treatment of syphilis is iodide of potassium and mercury. No one knows why these remedies are so valuable in that disease. In typhoid fever we know of no specific remedy; we must consequently treat the disease according to its morbid elements. We know that typhoid fever is a specific

follicular ulceration of the alimentary canal. This is the most important element of the disease; most of its dangers are connected with this lesion, death resulting from either (1) excessive diarrhœa, (2) hemorrhage from the bowels, or (3) perforation of the intestinal wall. In addition to the above element we have to consider the blood-poisoning and the nervous symptoms generally present.

Are the ulcerated solitary glands and Peyer's patches the primary seat of the trouble? Does the blood become poisoned by septic influence from them, or is it poisoned by matters absorbed from other sources, and are the glands inflamed in removing the poison? To put the question more pointedly, are the glands ulcerated before the blood is poisoned, or ulcerated in removing the poison from the blood? In syphilis the glands of the body become enlarged as a consequence of blood-poison, whereas in diphtheritic sore throat the glands are swollen from the absorption of poisonous matters. We know that the poison of typhoid fever enters the system through the alimentary canal, that the glands of the intestines are *first affected*, then those of the mesentery, and then the other glands throughout the system. This lesion of the glands of the intestines must therefore have some connection with the origin of the disease. We have also to deal with a specific blood-poison in typhoid fever. This poison seems to consist of effete matter from the body of another person who has had the disease; at least this is the commonly received explanation. For my own part, I do not believe that this transplanted excrementitious poison is the only one, but think that the poison may be generated *de novo* from effete animal and vegetable matters.

The specific follicular catarrh of the intestines is of great importance in the determination of our treatment, for there cannot be a rational treatment of the disease which does not take it into account. There has arisen of late years a school of practitioners which has pinned its faith to an entirely expectant treatment, waiting upon nature. This same expectant treatment might be just as well employed in all specific diseases, for it is tolerably certain that if all diseases were treated alike, with the same food and the same drugs, the proportion of recoveries would be about as high as it is under the most improved

methods of treatment, provided, of course, that the number of cases considered be large enough. But this would not be intelligent therapeutics. Results, in a limited number of cases, are far better if we treat according to individual peculiarities than if we adopt one rigid form of treatment for all cases of typhoid fever.

And first, then, how shall we treat the follicular intestinal catarrh? There are, undeniably, certain remedies which exert a powerful influence upon this state of the intestinal mucous membrane. The first of these is nitrate of silver, which reduces the size of the enlarged follicles, relieves the inflammatory engorgement, and allays the hyperæsthesia of the nerves. So, too, with carbolic acid and the subnitrate of bismuth. But of the three the nitrate of silver is the most easily administered and the best tolerated by the system. It is also, undoubtedly, the most powerful in its soothing effects. Should there be any putrid element in the disease, carbolic acid should, of course, be used in place of the silver. In the vast majority of cases which have been under my care I have employed the nitrate of silver. This may be administered in doses of one-fourth of a grain four times a day. This treatment should be persevered in until the ulcers have entirely healed. Such a small amount of the drug can in no instance cause any discoloration of the skin.

Not only have we to subdue the ulceration, but also the resulting diarrhœa, which is occasionally excessive. If the discharge from the bowels is composed of small, semi-solid stools, it may with perfect propriety be disregarded, but if the stools are watery and large it must be checked. For this purpose I have been in the habit of using opium in pill-form, combined with the nitrate of silver. I give from one-quarter up to one grain of the powdered opium three times a day if the symptoms are urgent. If the bowels instead of being loose become constipated, I am accustomed to order belladonna conjointly with the nitrate of silver.

Then as regards the proper diet when this catarrhal inflammation of the intestines is present. The food must be, of course, as digestible as possible. Milk is the best diet in such conditions. If the curd appears in the stools, the milk should be diluted with water or lime-water. Of this mixture of milk and lime-water three

ounces may be given every two hours, or a little over two pints in the course of the twenty-four hours. When the bowels are torpid, beef or mutton broth may be given alternately with the milk, though neither of these is anything like as nutritious as the milk.

Indeed, as has been very thoroughly proven by Dr. Horace Hare in experiments made at the University laboratory, beef boiled in the good old-fashioned way in a bottle with water gives us a resulting solution which contains only about one-fourth of one per cent of nourishing material. The beef tea thus manufactured is chiefly a solution of the salts of meat, and is therefore not nutritive, and only valuable as a stimulant to digestion. But there is another way of making beef tea, which gives better results. Take a quantity of tender meat, and, after cutting off the fat, chop it up fine, put it in a bowl, pour a pint of water over it, and let it stand over night. It may possibly be well to keep the water just on a simmer; do not raise the temperature above 140° , however, or you will coagulate all the albumen, and so either leave it on the sieve in straining, or introduce it into the stomach in the form of curds. After this simmering solution has been allowed to stand over night, pour it into a pipkin and heat it again gently with enough salt to give it flavor, and, if necessary, add a drop or two of muriatic acid. Then pour it out over a hair sieve into a jar. The resulting solution will contain all the nutriment possible, and is the most valuable kind of stimulant and laxative.

Do not fail to recognize the fact that when the fever is high the patient needs all the food he can take. Acting upon this principle, I am in the habit of giving food freely in typhus fever. In typhoid fever, however, we must be careful that in allowing food we do not further irritate the already inflamed intestinal tract.

The poisoned state of the blood in this disease must be controlled by means of quinia, nitromuriatic or salicylic acid. Quinia is, of course, indispensable. Salicylic acid is valuable as a disinfectant and antiphlogistic: it is, however, slightly irritant. I should advise its use only where there is some putrid discharge joined with high fever. I give quinia in the form of the sulphate as a routine treatment, for it (1) neutralizes the effects of the septic

poison in the blood, (2) acts as a good tonic to the muscular and nervous systems, (3) tends to check febrile action, and (4) removes any malarial element that happens to be present. I never administer the enormous doses given by German physicians. It is very true that such doses will break down high fever, but joined with this good result there is so much unnecessary irritation of the mucous membrane produced that heroic treatment such as this should only be adopted as a last resort. I am in the habit of giving about twelve grains of quinia in the course of the twenty-four hours.

How are we to combat the febrile action itself? We have already tried to prevent it by means of careful diet, nitrate of silver, and quinia. I believe in keeping temperature down by preventive measures rather than by the cold bath, which I place among the very last resorts of the physician. It is almost unnecessary to say that I am wholly opposed to the indiscriminate cold bathing in typhoid fever so much in vogue in Germany at the present day. When the temperature runs up in spite of our drugs, I would advise, in the milder cases, spongings of the whole body every two hours,—the sponges to be squeezed out of a mixture of water and bay rum at a temperature of from 60° to 80°. If this does not succeed (it rarely fails), and the patient's temperature mounts up to 104° or 105°, then he must be wrapped in sheets wrung out of cold water. If the temperature still runs up to such an extent that life is threatened, I would then have the patient placed in a cool bath until the bodily temperature is sufficiently reduced. So far, therefore, from regarding cold baths as a proper mode of treatment, I would have them reserved for the gravest of all conditions only, and never employ them until the danger-point was reached. Before the local lesions set in, we can attack the fever more boldly, but when the fever in subsequent stages runs high, it is of the nature of a sympathetic fever, largely dependent upon the amount of intestinal lesion, and therefore the use of cold baths at this period is attended with great risk. If the cold bath is to be used at all (except as a last resort and when temperature can be reduced in no other way), the proper time for it is during the first seven or ten days in cases where the temperature rises above 103° and is not

controlled by frequent spongings, large doses of quinia, diaphoretics, etc.

As typhoid fever lasts so long, there is, of course, a great deal of prostration attending it, and stimulants are quite often called for. Now, I want to say a word to you with regard to the use of stimulants in this disease. Do not fall into the common habit of administering stimulants to a patient simply because he has typhoid fever. Stimulants are only demanded for the relief of certain symptoms. Children before the age of puberty are usually able to pull through an attack of typhoid fever without any stimulus. This patient before you has been carried safely through both first attack and relapse without a drop of stimulus. Stimulants are as a general rule only needed in the case of an old person, or to meet certain indications. These indications I may conveniently arrange under four heads, viz., (1) ataxic nervous disturbances, such as sleeplessness, twitchings of the muscles, maniacal delirium; (2) circulatory disturbances, such as feeble and rapid pulse, and feeble development of the first sound of the heart; (3) profound asthenia, as shown by great tremulousness, inability to make any movement, and tendency to slide down off the pillow; (4) dry and brown tongue, with sordes on lips, teeth, and tongue. You will usually be able to note at once the development of any of these symptoms, which of course render stimulation absolutely necessary if the patient's life is to be saved. In using stimulus it is well to begin with the milder forms, such as wine whey. This should be made in the proportion of one part of sherry to three of milk, and as much as a gill or half a pint of it may be given in the course of three hours. If the symptoms increase, however, it is a sign that stronger stimulus should be employed, and whiskey must then be given. I usually give whiskey in lime-water and milk, the lime-water preventing the coagulation of the milk by the alcohol. I make up the mixture in the proportion of one tablespoonful each of whiskey and lime-water to every three ounces of milk. In this form half an ounce of whiskey may be given every hour. Indeed, in some very serious cases I have administered as much as an ounce of whiskey every hour for a day and night in the crisis of the disease. If your stimulation is doing good, you will be able to note a diminution of all the serious symptoms. If, on the other hand,

the symptoms increase, you had better reduce the amount of stimulus given. Some authorities advise the use of stimulus to a slight extent in all cases after the middle of the second week of the disease. The occurrence of hemorrhage, pneumonia, or severe bronchitis always demands prompt stimulation. In some cases stimulants may prove a cause of irritation to the ulcerated glands, and so increase the secondary fever.

Before closing, there are a few points which I desire to impress upon your minds regarding the complications of typhoid fever and their treatment. This man is a very good illustration of one of these complications, viz., relapse. Relapses may occur at any time during the period of convalescence, and are always to be regarded as true second attacks of the disease. In the diagnosis of relapse be careful to search for any local cause, such as pneumonia or bronchitis; if none such can be found, you may be pretty certain that the relapse is a true one. It is very easy to understand how a relapse may occur, when we consider that it is nothing more or less than a return of inflammation to the glands of the intestines: some of the ulcers have healed, perhaps, and others have not progressed quite so far, when another crop of glands go on to ulcerate. When relapse appears, treatment must be resumed at once, the diet restricted, and the same general watchfulness had over the state of the case as during the course of the first attack.

This man's relapse was heralded by a series of copious hemorrhages from the bowels. Hemorrhage, as a complication of this disease, must for a moment engage our attention. Hemorrhage may take place at any time while the bowels are ulcerated. It generally occurs at one of two periods,—either early in the attack, when it is of little or no consequence, or later, when the sloughs are thrown off from the ulcers. Hemorrhage at this time is always a serious matter, it may be very fatal, producing death in the course of a few moments. Be careful, therefore, to have every dejection examined by the nurse.

The treatment of hemorrhage is by absolute rest in bed for twenty-four hours, and by the administration of opium to produce absolute quiet for the alimentary canal. In cases of hemorrhage I am in

the habit of giving opium by the mouth, or, better still, by the rectum. I prefer the solid opium, and prescribe one grain every two or three hours until the patient is gently under its influence. Then we have certain astringents which act locally. Of these, acetate of lead is perhaps the best: a suppository containing three grains of this drug and one grain of opium may be given three or four times daily. Ergot, by reason of its action on the walls of the arterioles, is invaluable in such hemorrhage. It may be given by mouth, rectum, or hypodermically near the supposed seat of hemorrhage. The food taken should be very small in quantity and absolutely liquid. If treated promptly, in the vast majority of cases the bleeding will be promptly stopped.

The last and most serious complication is perforation of the bowel. This is also most likely to occur late in the disease when the sloughs are thrown off. Though not common, it can easily be produced by walking about, or eating indigestible food while the ulcers are unhealed. The symptoms are sharp pain, sudden collapse, sighing breathing, and thready pulse. It is more liable to happen in old than in young persons. No one ever got well who had a true perforation. The inflammation may bring on peritonitis, and the symptoms of peritonitis may simulate those of perforation. Peritonitis must be treated by antiphlogistics, sedatives, perfect rest in bed, and a diet which leaves no residuum to irritate the bowels. Of course incision of the abdomen and suturing of the intestinal lesion is out of the question in cases of perforation, owing to the specific condition of the inflamed glands.

[January 25.—I bring the patient before you to-day entirely convalescent. His tongue is clean, his pulse about normal, his bowels regular, and his fever gone. There has been no return of hemorrhage. The man is indulging in a mixed diet and plenty of exercise. He has given up the nitrate of silver altogether. During the last day or two he has been taking cod-liver oil and iron to fatten him up.]

EXTRA-UTERINE PREGNANCY.—Dr. Henry Gervis reports (*British Medical Journal*, December, 1877, p. 884) a fatal case of extra-uterine gestation in which abdominal section was practised.

ORIGINAL COMMUNICATIONS.

BELLADONNA AS A REMEDY FOR COLLAPSE.

BY REINHARD WEBER, M.D.

EVERY physician in active practice has undoubtedly noted more than once the comparative inefficacy of our remedial agents for a state of collapse, particularly that state of collapse which we find so frequently in inflammations and other diseases of the abdominal organs. How often do we prescribe camphor, musk, and alcoholic stimulants with the hope of restoring the failing action of the heart and the natural warmth of the extremities, which are bathed in a cold and clammy perspiration, and how often are we disappointed! By drawing attention to a remedy not before used in such contingencies, I hope to render my colleagues a service that may not prove unwelcome, particularly as the remedy I intend to recommend has the advantage of being easily administered internally as well as hypodermically. Such a remedy, experience has convinced me, we possess in belladonna. Not that I intend to praise belladonna as a *certain* remedy for all cases of collapse, for that would be absurd; but I feel bound to express my conviction that belladonna is more effective in many cases of collapse than the remedies mentioned above. I was first induced to commence my investigations by an article in a German medical journal, in which the writer declared belladonna antagonistic to digitalis, and the best antidote against poisoning by digitalis. But this writer did not recommend belladonna for collapse. In fact, this word was never made use of in his article. Not very long after having read this, the following case came into my hands:

Case I.—William H., aged 8 years, was taken sick with scarlatina. The fever was of moderate severity, and appeared to be nearly gone by the tenth day; desquamation was in fair progress. Two days later he was seized with a more violent attack of fever than in the beginning; pulse 128, temperature in the evening above 104 degrees, in addition synovial irritation of the joints, just as in inflammatory rheumatism and endocarditis. Urine very scanty, but free from albumen. As the patient could not keep quinine on his stomach, an infusion of nine grains of digitalis was ordered to be used all in twenty-four

hours; besides this, milk-punch. The patient continued with this treatment for five days without any apparent effect of the digitalis on the pulse, temperature, or kidneys. Then, after having used forty-five grains of digitalis in infusion, the toxic effect of this drug appeared suddenly, and I was sent for early in the morning. I found the patient in a state of collapse,—cold extremities, covered with a profuse perspiration, countenance pale, and features contracted, vomiting, and a pulse of 52 per minute and quite irregular. I prescribed ext. belladonnæ, gr. $\frac{1}{4}$, acid. sulphuric. dilut. \mathfrak{z} i, with syrup of ginger and water q. s. to make twelve fluidrachms; a teaspoonful of this to be taken every hour. At the expiration of twelve hours I found my patient greatly changed for the better; pulse now 64 per minute, quite regular, and very strong; extremities warm and natural; no vomiting, and a plentiful excretion from the kidneys. From now the recovery of my patient was a speedy one, and he is looking more healthy at present than before his sickness; but auscultation still shows the presence of mitral insufficiency.

The experience of this case matured my resolution to give belladonna a fair trial in the next case of collapse that should come into my hands. The first opportunity offered was in the following:

Case II.—Mrs. H., aged 41 years, had been attended by another physician for five days; suffering from gastro-enteritis. I found her in a high state of collapse, as will be seen from the following symptoms: almost constant hiccough for twenty-four hours, frequent vomiting of bloody matter resembling black vomit, and frequent diarrhœa, cold and cyanotic condition of her extremities, and great tympanitis, with tenderness of the abdomen, pulse quite small and very frequent, lungs and heart apparently without organic disease. As alcoholic stimulants had been ordered already by her first medical attendant and without apparent result, I concluded to try belladonna. I prescribed

R Ext. belladonnæ, gr. i;
Tr. opii, gtt. xx;
Potass. chlorat., \mathfrak{z} ss;
Aquæ menthæ pip., \mathfrak{f} iii.—M.

To be used all within twenty-four hours. No other medicine, except an injection of starch-water, with twenty drops of laudanum, for the diarrhœa. The next day I found this patient much better; the hiccough had ceased, the circulation in the extremities appeared much better, and the vomiting was less frequent, and was green instead of bloody. On the fourth day of my attendance, natural warmth of all the extremities, pulse strong,—from 90 to 100 beats per minute,—vomiting and diarrhœa had ceased, and the tympanitis and tenderness of the abdomen were greatly lessened. Three days later, the gastro-enter-

itis apparently over; patient complains of hunger, and is quite cheerful, but appears still very weak. Up to now the same treatment had been persevered with; the dose only had been reduced one-half after the extremities had resumed their natural warmth. After this Mrs. H. improved steadily on a quinine and muriatic acid tonic and a good diet, but she was not strong enough to sit up until two weeks later.

Case III.—Anna S., aged 6½ years; was in the fourth week of a rather severe typhoid fever. Her disease had been marked so far by high degrees of temperature, following chills in the forenoon, notwithstanding the use of quinine. Besides, she had general bronchitis, and she complained a great deal of an exquisite tenderness between the umbilicus and processus ensiformis. In the middle of the fourth week I was suddenly sent for again in the evening, and found her in a state of severe collapse; almost ice-like coldness of her extremities, with blueness of the skin and of the lips, respiration difficult, and 42 per minute; pulse very frequent and hardly perceptible; no signs of pneumonia, but dry and moist rhonchi all over the chest. No other change was made in her treatment but the addition of one-quarter of a grain of ext. belladonnæ to two ounces of a quinia solution which she had been taking before. This quantity I directed to be used all during the next twelve hours; besides this, milk-punch in the doses in which it had been given already for several weeks. The next morning I was agreeably surprised by the condition of my patient. Her limbs were of natural temperature and color; her pulse strong and 100 per minute; her respirations but 22 per minute, and *all the signs of bronchial obstruction had completely disappeared.* The child was cheerful, and played with her doll. From then her recovery progressed without any interruption.

As some of my readers may doubt whether such small doses of belladonna as I have given in these three cases could exert a pronounced remedial effect on the system, I feel bound to lay special stress upon the following points. All of these patients complained of dryness of their throats, and their pupils were widely dilated. Mrs. H., as long as she was under the influence of belladonna, was frequently troubled with visual hallucinations, such as rats running over her bed, and Anna S. cried repeatedly for over half an hour, rubbing her hands and arms in an excited manner, wiping off imaginary roaches.

If space permitted, I could multiply similar cases to prove the efficacy of belladonna for the symptoms of collapse; but these are sufficient to show the utility of

the remedy. I shall now attempt to give my explanation of the *modus operandi* in which the belladonna produces its effects.

Theory of the action of belladonna in a state of collapse.—Here I find it necessary first to answer the question, Which is the principal element in those cases of collapse as we see it so often in inflammations and other diseases of the abdominal organs? What causes the smallness of the pulse and the coldness of the periphery, while the thermometer introduced into the rectum shows higher degrees of temperature than normally, and while the patient swallows ice in lumps to relieve the burning heat of the internal organs? The answer which appears to me most plausible is, A state of dilatation of the arteries and arterioles in the abdominal cavity, caused by an *anenergia* of the vaso-motor system of nerves. I must here refer my readers to the well-known experimental effects resulting from section of the nervi splanchnici, which always produced symptoms similar to cholera-collapse. I must also cite an old experiment, made first by Claude Bernard, and repeated by many others. Claude Bernard cut the cervical sympathetic of a rabbit on its right side. The consequences were vaso-motor paralysis of the right side of the head and face. The temperature, which before the section had been equal in both ears and had shown 94 degrees of Fahrenheit, now rose on the paralyzed side to 100 degrees, and *sank* on the sound side to 91 degrees. But if Claude Bernard stimulated the divided part of the cervical sympathetic by means of electricity, there followed immediately a *fall* of the temperature of the paralyzed side, and a *corresponding rise* in the sound one. I believe the action of belladonna to be similar to that of the electricity in the experiment cited above, assuming, *quite contrary to most authorities in materia medica*, a stimulant effect of the belladonna on the sunken energy of the vaso-motor nerves, instead of a paralyzing action, and, as a consequence of such an effect, a diminution of the passive congestion of the abdominal vessels, and a corresponding fuller circulation of the periphery and the nervous centres. Further, the effect which belladonna has on the cervical sympathetic, through which it quickens the beats of the heart and at the same time strengthens them,—as Meuriot has proved by the sphygmograph,—has a *share* in the good

result. But, in order to prove that my assumption of a *stimulating* influence of belladonna on the coats of the arteries is not an arbitrary or merely subjective one, I cite the following from Nothnagel's "Materia Medica:" "Atropia, when brought upon the web of the frog's foot, produces very quickly a contraction of the smaller arteries, seen by Meuriot, Fleming, Jones, and Hayden. Further, belladonna produces a contraction of the arteries of the spinal marrow similar to ergotin (Brown-Séguard)." Notwithstanding this, we find Nothnagel explains the increased frequency of the heart's action, following the use of belladonna, by a paralysis of the inhibitory nervous fibres running in the pneumogastric nerve. The theory which ascribes to belladonna merely a paralyzing agency can, as I firmly believe, not be made to agree with my observations, nor with the long-known facts of the influence which belladonna exerts on the secretions of the salivary glands, mammary and sweat glands.

Finally, I consider it necessary to give special prominence to the following two points: First, I claim the stimulating influence of belladonna on the vaso-motor nerves only for medium doses of the remedy, as it is easy for me to conceive of quite a contrary effect of large and toxic doses, for which we have an analogy in digitalis, alcoholic stimulants, etc.

Secondly, regarding the so-called antagonistic action of belladonna and opium, I have often prescribed the two together, and have never seen a marked diminution of the effects of belladonna by opium or morphia, with the sole exception of *that* upon the pupils.

In conclusion, I would add that it does not appear to me improbable, although I have at present only theoretical reasons for my belief, that in future we will find in belladonna one of our most valuable remedies for the treatment of *cholera-collapse*.

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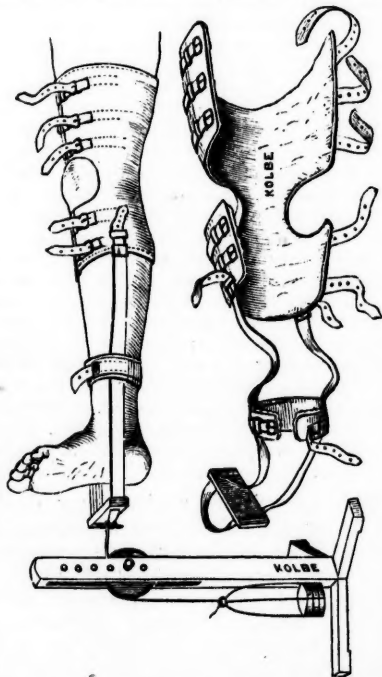
REPORT OF CASES OCCURRING IN THE PENNSYLVANIA HOSPITAL.

SERVICE OF DR. T. G. MORTON.

By W. C. Cox, M.D., Surgeon to the Out Department.

CASE I.—Compound Fracture of Tibia and Fibula, and Fracture of the Femur; New Extension Apparatus.—J. C., aged 43, admitted September 12, 1877. While working in a

mine, he was struck by a piece of coal weighing more than a ton, which rolled down on him from a distance of five feet, and at an angle of 50°, striking his right leg and thigh, causing a compound fracture of the tibia and fibula about the middle, and a simple fracture of the upper third of the femur of the same side. The leg was placed in a fracture-box, and dressed with laudanum and extract of lead. The thigh was kept in position by means of a sand bag on the outside. At the end of a week, as there was considerable shortening, extension of the femur was deemed best. The long Desault splint was applied to steady the leg and thigh, and extension was then made by placing on the leg Dr. Morton's apparatus (see figure). By this means the compound fracture of the leg was easily dressed and examined, thigh-extension being conducted at the same time without any interference with the compound leg fracture.



The case progressed nicely, and on October 1, union of femur and leg bones being quite firm, the apparatus was removed and paste-board splints applied. There was a shortening of only one inch.

The advantage of this form of extension apparatus is that it can be easily removed, and the condition of the limb examined from time to time; this apparatus has been used by Dr. Morton for extension in most of his cases of fracture of the thigh, as it

is readily adjusted, cleanly, and simple in adaptation. Dr. Morton has also used this apparatus for years past with great advantage in cases of coxalgia, where the patient is up and about during the day with an extension brace, and when it is desirable to keep up extension at night; this apparatus being more readily applied than the ordinary adhesive plaster. In the case of the compound leg and thigh fracture just detailed, it would have been impossible to use the long strips of adhesive plaster, since the compound character of the fracture of the leg was at the part where the strips would necessarily have been placed. Any attempt to make extension by an apparatus such as a gaiter upon the foot itself should not even be entertained, as such an amount of extension so long continued as would be required in a fracture of the thigh would most surely excoriate the foot from pressure upon it.

Case II.—Enchondroma of Testicle; Extirpation; Cure.—O. V., aged 28, admitted October 4, 1877. In January last was thrown from a sleigh, and the following day had considerable pain and swelling of the left testicle; the patient thinks the organ was not injured in the fall. The testicle continued to increase in size until admission, when it was the size of an orange, very heavy, and having an almost stony feel. The tumor was not painful, with or without pressure. The tumor was diagnosed as one of enchondroma of the testicle. Removal of the degenerated gland was advised, and performed by Dr. Hunt on October 5. An incision was made over the tumor, and, the cord being isolated, the écraseur was applied,—a ligature being first passed through the cord in case of hemorrhage. The wound was closed with silver sutures and dressed with carbolized charpie. During the following twenty-four hours had slight hemorrhage, which was easily controlled by pressure; hemorrhage recurring, a pin was passed through the cord and a ligature thrown over it. The wound rapidly closed, and he was discharged cured November 11. An examination was made by Dr. Fricke, who writes as follows:

"Oct. 6, 1877.—The microscopic examination of the piece of degenerated testicle shows it to be a very decided example of enchondroma,—that rare degeneration of the testicle."

Prof. Leidy, to whom I submitted a part of the specimen, writes that "it proved to be an undoubted enchondroma, the tissue having all the normal character of cartilage. It probably had its origin from the connective tissue of the tunica albuginea or the corpus Highmorianum."

(To be continued.)

THE EFFECT OF ELECTROTONUS ON THE RAPIDITY OF THE TRANSMISSION OF NERVE-FORCE.

BY ISAAC OTT, M.D.

IT is known that when a galvanic current traverses a nerve it is said to be in a state of electrotonus. The part of the nerve about the negative pole is in a state of increased excitability called katelectrotonus; the part of the nerve about the positive pole is in a state of decreased excitability called anelectrotonus. The nerve-section lying between the poles is called the intra-polar part; those outside the poles the extra-polar parts, anelectrotonic or katelectrotonic according to the pole. Extra-polar katelectrotonus means that part of the nerve outside the negative pole, extra-polar anelectrotonus means that part of the nerve outside the positive pole. To measure the rapidity* of nerve-force, I employed a Marey-Foucault regulator on one of whose wings was a projecting point, which (when the glass disk on the central axis attained a certain velocity) expanded and struck a bridge which opened a current in the primary coil of Dubois-Reymond's apparatus. This induced a current in the secondary spiral, which was sent to the nerve in Rosenthal's rheophoric box, or to the muscle by means of Pohl's commutators. By this means a quite uniform rate of speed was obtained at each registration, and the current was always broken at the same time. The poles used in the box were of platinum, as well as the polarizing electrodes. Unpolarizable electrodes were not necessary. Several observers have studied the effect of the galvanic current on the rapidity of the transmission of nerve-force, but Von Bezold† is the only one who has studied it minutely. He proved that neither polarization of the muscle nor of the nerve attached to the muscle had any effect worth noticing on the latent time of muscular contraction. The latent time means that the muscle takes about one-hundredth of a second after the electric irritation is received to commence to make a movement,—that is, a contraction. In my experiments I took care that this latent time was not altered during the experiment by surrounding circumstances. In the following ex-

* Journal of Nervous Diseases, 1878.

† Untersuchungen über die elektrische Erregung der Nerven und Muskeln, Leipzig, 1861.

periment the nerve was irritated within five millimetres of the muscle, and afterwards a few centimetres up the nerve. Between these exciting electrodes a polarizing current from two carbon-zinc cells was traversing three millimetres of the nerve. The distance between the curves when the nerve was irritated near the muscle and at a distance was compared with that obtained after passage of polarizing current.

Exp. I.—Nerve-muscle preparation, T. 13 C.

3.0 P.M.—Normal distance between curves, 4 millimetres. Descending electrotonus for a few minutes.

3.5 P.M.—Distance between curves, 5 millimetres. Ascending electrotonus for a few minutes.

3.10 P.M.—Distance between curves, 6 millimetres.

In this experiment, the modifications of the nerve by anelectrotonus and katelectrotonus united come into play, and, as is seen, the rapidity of the transmission of nerve-force is lessened by them. Where a number of polarizing cells are used for some time, no transmission takes place at all. Hence ascending and descending electrotonus decrease the rapidity of the rate of movement of nerve-force. Here both intra-polar and extra-polar anelectrotonic and katelectrotonic conditions come into play; the effect of these separately is an interesting question to study in their relation to the velocity of the vis nervosa.

Extra-polar katelectrotonus.—The effect of this state is the subject of dispute. Von Bezold holds that it diminishes the rate of movement of the nerve-force. As is known, the negative pole produces here a state of increased irritability of the nerve. Wundt* states that shortly after the polarizing current is turned on, the rapidity is increased. Prof. Rutherford,† of Edinburgh, also has made a similar statement, and that strong currents which reduce the irritability of the nerve at the negative pole reduce the rapidity. Here the polarizing electrodes were placed outside of the exciting electrodes, the negative pole being nearest the farthest pair of exciting electrodes. I made a number of experiments with weak and strong currents.

Experiment II.—Nerve-muscle preparation, T. 4½ C.

2.48 P.M.—Normal distance between curves, 3 millimetres. Extra-polar katelectrotonus for fifteen seconds.

2.54 P.M.—Distance between curves, 1 millimetre.

Here the polarizing current was generated by one carbon-zinc cell.

As is seen, Von Bezold used too strong currents and for too long a time. With two polarizing carbon-zinc cells for a few minutes I always found the rapidity diminished.

Extra-polar anelectrotonus.—Here, as Von Bezold observed, I always found the rapidity decreased.

The effects of the intra-polar conditions of the nerve remain to be studied, as regards their effect on the rate of transmission of nerve-force.

Intra-polar anelectrotonus and katelectrotonus.—Here one of the polarizing poles is placed between the exciting electrodes. I always found that they diminished the rapidity of movement, as Von Bezold proved.

From the above observations, it is seen that the galvanic current alters not only the irritability of the nerve, but also the rate of movement of the vis nervosa. These experiments bring out the question of the relation between the irritability of the nerve and rate of movement of its nerve-force. It is quite probable that there is a definite relation between them: thus, woorari, which lowers the irritability of a nerve, also lowers the velocity-rate, whilst strychnia increases the rapidity of transmission of the nerve-force. Stretching‡ a nerve to a considerable extent also lowers the irritability and rapidity. Whether weak stretching, which excites nerve-irritability, increases it, I have not investigated.

The following résumé expresses my conclusions:

1. Electrotonus diminishes the rapidity of the movement of the nerve-current.
2. Intra-polar and extra-polar anelectrotonus also slow the current.
3. Extra-polar katelectrotonus increases the rate of transmission.
4. Intra-polar katelectrotonus diminishes it.

ECHINOCOCCUS AND TAPEWORM. — Dr. Francis Druder details (*Virginia Medical Monthly*, December, 1877) a case in which fluid of echinococci was drawn from the liver by aspiration, and tapeworm passed from the bowels during exhibition of pomegranate rind decoction, with apparent recovery.

* Untersuchungen zur Mechanik der Nerven und Nervencentern, Erlangen, 1871.

† *Lancet*, 1871.

‡ *Ohio Medical and Surgical Reporter*, 1878.

NOTES OF HOSPITAL PRACTICE.

UNIVERSITY HOSPITAL.

SERVICE OF DR. WM. GOODELL.

Reported for the *Medical Times*.

PELVIC PERITONITIS AND PELVIC CELLULITIS.

THESE two affections are usually found combined, so I rarely attempt to distinguish between them. (Pelvic peritonitis is an inflammation of the parts of the peritoneum adjacent to the womb, while pelvic cellulitis is an inflammation of the underlying cellular tissue.) I will therefore lecture upon them conjointly.

You will remember that I operated upon this woman on December 2 for stenosis of the cervical canal. On the 3d, the day after dilatation, her temperature suddenly ran up to 102° , and she had a series of chills and very severe pain in the region of the womb. On two occasions since the operation the temperature has risen to $103\frac{3}{4}^{\circ}$. This has been a typical case of pelvic cellulitis and peritonitis.

This disease may follow any operation,—the very slightest perhaps. It usually begins with a rapid rise in temperature, chills, and agonizing pelvic pain. Generally the attack is slight and easily subdued, but here it has been otherwise. In the more serious cases, such as the present, there will be marked night-sweats, meteorism, dysuria, etc., etc. What do these symptoms mean? The pain is due, of course, to the inflammation and plasma thrown out. The chill is the result of nervous impression, while the dysuria is caused by an exudation in the neighborhood of the bladder, which presses upon it.

The causes of this disease may be very slight. I have already said that it may follow any operation upon the female genital organs. Last year I had a case in which it was produced by the introduction of the uterine sound.

The womb in its natural position floats like a ship at anchor, and, just as the ship is frozen in during winter, so pelvic peritonitis and cellulitis bind down the womb,—plasma is thrown out all round, changing the broad ligament into a board-like consistency, and securely fixing the womb. Upon examining this woman with one hand on the abdomen and one finger in the vagina, I find the womb bound in on all sides by the exudation. The parts,

too, are tender to the touch. There is a hard body above the womb extending fully half-way up to the umbilicus. This is an agglutination of the intestines and omentum. Nature, you see, is always alive to an emergency, and prepared to protect herself. She sees an inflammation beginning near the womb, and all the tissues giving way before it. Immediately she sets to work to form a barrier to its progress. She sets up a process of agglutination between the omentum and intestines, and causes them to become adherent to the margin of the pelvic peritoneum, and so prevents the inflammation from spreading.

As regards the treatment of this disease, first be sure that you recognize it. You have performed an operation, perhaps, and in the course of the next forty-eight hours the woman sends for you suddenly. Upon your arrival you find all the pathognomonic symptoms. Administer at once a full hypodermic dose of morphia, and from ten to twenty grains of quinia by the mouth. If you take these measures promptly you will often stop the disease at once.

If you cannot abort the attack you must take up the treatment regularly,—paint the abdomen with iodine and put on a poultice. Now, some persons use as many as half a dozen poultices daily. The reason of this is that the poultices, being uncovered, dry up rapidly. If the poultice is covered with oiled silk, or greased brown paper, one poultice will remain soft for twenty-four hours. All this time you must keep your patient under large doses of quinia. If the temperature is high she should have ten grains at a time, and from thirty to forty grains in the course of the day. Large doses of morphia must also be given. If the woman be plethoric the morphia may be given by the mouth with neutral mixture and wine of ipecac, or in some other fever mixture. In some cases tonics are demanded. If the sickness lasts for more than a week, and the local tenderness increases, put on a blister promptly.

Later, you will find that muriate of ammonia is a very excellent remedy in this disease; so, too, is aconite. I usually prescribe the following:

R Mist. glycyrrhizæ comp., ℥vi;
Ammoniaë muriatis, ℥ii;
Hydrarg. chloridi corrosivi, gr. i;
Tinct. aconiti radicis, gtt. xxiv.

M. S.—A tablespoonful in water every six hours.

As concerns routine treatment, the patient should take plenty of milk, whiskey, beef tea, and large doses daily of dialyzed iron.

TRANSLATIONS.

NERVOUS HÆMOPTYSIS.—Carré (*Cbl. f. Med.*, 1877, p. 744; from *Archives Gén.*) has endeavored to ascertain whether nervous hemorrhages—that is, those which occur during the existence of neuropathic conditions, as hysteria—are the result of the neuropathy or are only accidental complications. Certain physiological and clinical facts, *e.g.*, that form of hemorrhage from the lungs which occurs in young animals after section of the vagus, or destruction of the pons, the pedunculi cerebri et cerebelli, or the medulla, are in favor of the former view. In addition, it is known that section of the cervical ganglia of the sympathetic is followed by hemorrhage into the pleura and lungs. Carré also alludes to that form of lobular pneumonia which occurs, particularly in old persons, as a result of cerebral hemorrhage, and to those lung-complications which accompany cerebral affections, as tubercular meningitis. Among the changes in the lungs which appear in connection with affections of the central nervous system Carré mentions hyperæmia, emphysema, inflammation, and apoplexy, with which are found at the same time hemorrhages into the skin and abdominal organs, hæmaturia and enterorrhagia.

Carré adduces notes of twenty-two cases going to show the connection between nervous troubles and hemorrhages from the lung. Of these, three were of disease of the cord, one multiple cerebral hemorrhage, ten hysterical affections, one chorea, six epilepsy. The other case was that of a girl of fourteen, who was attacked at the period of her first menstruation with headache, vomiting, and mental disturbance. She became emaciated, and suffered from epileptic onsets occurring at the periods of expected menstruation. Soon after followed cough, with expectoration of blood. The latter frequently occurred simultaneously with the epileptic attacks. The case ended fatally. At the autopsy an abscess was found in the upper part of the right lung, together with œdema of the brain.

The number and variety of observations in which bleeding from the lung has been

noted in connection with neurotic affections are so great as to put the accidental concurrence of these symptoms out of the question. The quantity of blood passed varies from the smallest trace tinging the sputa up to streams of pure blood. The hemorrhage is, however, never so profuse as in the hemorrhage of tubercular phthisis. It frequently coincides or alternates with other forms of bleeding, as epistaxis or hæmaturia, enterorrhagia or cutaneous hemorrhage. Occurring simultaneously also with pulmonary hemorrhage, Carré has observed certain vaso-motor symptoms,—turgescence of the cutaneous and cervical vessels, enlargement of varices during the hysterical crisis, alternate blanching and flushing of the face in hysteria and epilepsy, circumscribed swellings on the forehead, reddening of the skin, and morbilli or rôtheln-like exanthemata, punctiform ecchymoses, and erysipelatous conditions. Physical examination of the lungs gave negative results, excepting in one case, where the pulmonary hemorrhage was shortly followed by acute phthisis. Coinciding, as it frequently does, with hysteria, this variety of hemorrhage of the lung is more common among women than among men. There is nothing regular about its recurrence in most instances. In cases where the nervous paroxysm recurs at regular periods the pulmonary hemorrhage follows shortly after the crisis, or occurs just before or alternates with the former. It seldom occurs at the same time. Carré does not include under the designation "nervous hemorrhage" those vicarious bleedings which take place on the cessation of menstruation.

Carré explains pulmonary hemorrhage taking place under the circumstances above described, by the theory of vaso-motor paralysis, which must be regarded as the result of a stage of excitation on the part of the vaso-motor centres. Both the neuroses (epilepsy, chorea, hysteria) and also the cerebro-spinal diseases with perceptible anatomical lesions, which have pulmonary hemorrhage as a result, lead, by means of the sympathetic, first to a narrowing then to an enlargement of the vessels, which last permits the hemorrhage. It is for this reason that the latter *follows* the neuropathic paroxysm.

The prognosis of these hemorrhages depends upon the character of the original lesion. Of themselves, they never cause

death. Those cases are most threatening in which multiple hæmoptyses are connected with bloody sputa. Treatment depends upon the character of the original affection. Astringents are called for only in cases of profuse hemorrhage. Blood-letting is usually harmful. Baths and derivation by the skin are sometimes useful. According to Carré's experience, arsenic and quinine are chiefly to be recommended, for these arouse the contractility of the capillaries directly, while they act indirectly by means of the nervous system upon the medulla and the vaso-motors. x.

THE THERAPEUTICS OF SANTONIN-POISONING.—C. Binz (*Cbl. f. Med.*, 1877, p. 748; from *Archiv f. Exp. Path.*) gives the case of a child two years of age, who took two troches containing together three-fourths of a grain of santonin. Ten hours later, no stool having followed, occurred clonic spasm of the right side of the face, spasmodic direction of both eyeballs to the left, dilatation of both pupils (left most), now and then strong contraction of the latter. Later, the left arm, then the left leg, then the right side also, became affected. Together with these symptoms, trismus with disturbance of respiration during the attacks was observed. Pulse normal; urine intense yellowish-green. Enemata of vinegar, and artificial respiration, were employed, and after four days the attacks gradually ceased. Binz also made some careful experiments as to the effect of santonin upon frogs, the results of which are detailed in the original memoir. In cases of santonin-poisoning, Binz recommends that chloral hydrate be first administered, and until this begins to produce its effect ether may be employed in the separate paroxysms. x.

TOXIC PROPERTIES OF GLYCERIN.—In an article on glycerin published in *Jornal de Pharmacia de Lisboa* and copied in *Giornale di Medicina Militare* (1877), No. 9, pp. 901-903, the author sums up as follows. Chemically pure glycerin when introduced hypodermically into the body of a dog in doses of eight to eighteen grammes for every kilogramme of weight of the animal, produces in the course of twenty-four hours fatal toxic symptoms. These symptoms (acute glycerism) present many points of similarity with those of acute alcoholism; and the lesions found after death are so analogous that they induce the belief that the former agent acts in

about the same manner as alcohol. In a therapeutic point of view, it is desirable to know how much danger attends the introduction of large quantities of glycerin into the human organism. J. B. R.

INTERSTITIAL GLOSSITIS OF SYPHILITIC ORIGIN.—Dr. Ch. Mauriac has published an interesting account of this affection (see review in *Le Progrès Médical*, 1877, No. 45, p. 853). The affection is rather rare, and not very well known. It is in character similar to syphilitic sarcocoele, and consists of a sclerotic inflammation of the fibrous partitions separating the delicate muscular fasciculi of the organ. The affection begins always on the dorsal surface, at first being superficial, and then invading the deeper tissues. It is more frequently met in men than in women, and perhaps has some connection with the use of alcohol and tobacco. There appears to be a hypertrophic and an atrophic period. In the former the enlarged, hard, and painful tongue presents on the dorsal aspect hollow furrows filled with macerated epithelium. There are noticed large papillæ, and often ulcerations, at the points where the tongue touches the teeth, or in the bottom of the above-mentioned furrows. The second stage is that of retraction of the new tissue, and then there occurs a deep antero-posterior fissure, with several irregular fissures. Finally, as atrophy progresses the organ becomes smooth and shining, is divided into little lobules, and gives the sensation of a tongue made of wood. Specific treatment is seemingly of some service in the early stages, but is entirely useless when the disease is advanced. J. B. R.

ATROPIA FOR THE TREATMENT OF PATHOLOGICAL SWEATING.—At a meeting of the Academy of Medicine, M. Vulpian presented a paper by M. Royet on this subject (*La France Médicale*, 1877, No. 90, p. 716), containing the results of observations made in the service of Vulpian, and remarked that the inefficacy of most remedies, especially in the night-sweats of phthisis, was well known. He believes that by pilules of sulphate of atropia, containing one-fiftieth of a grain, these night-sweats can surely be prevented. Generally one or two such pills are sufficient, but in some cases the dose must be increased to four pilules. These experiments serve to confirm those of Da Costa and others, made some years ago and published in the *Philadelphia Medical Times*. The objec-

tion to the remedy is the dryness of the throat which results during the employment of the drug; and it has been proposed to give the atropia in combination with jaborandi.

J. B. R.

NERVOUS ASTHMA CURED BY SUBCUTANEOUS INJECTIONS OF ARSENIC.—Martelli reports the case in *Gaz. Medica-Italiana*, which is translated in *La France Médicale*, 1877, No. 92, p. 731. The patient, aged 30 years, and of nervous temperament, was slightly emphysematous from the asthmatic attacks, but had no cardiac lesion. Chloral, morphia, and the ordinary remedies were tried in vain; but though arsenic administered by the mouth had done no good, yet hypodermics of Fowler's solution not only cured the attacks but suspended for a time their return. Some time subsequently he had asthma again, but it was arrested at the first paroxysm by two hypodermic injections of solution of arsenite of potassium.

J. B. R.

PROPHYLAXIS OF HYDROPHOBIA.—M. Proust, who presented a study of the cases of hydrophobia observed in France from 1850 to 1876, deduces the following conclusions (*Le Progrès Médical*, 1877, No. 45, p. 848). Cauterization, being the prophylactic remedy employed so frequently, should be studied statistically, in regard to the variety of caustic used, the manner of application, and the time between inoculation and cauterization. Prompt and thorough cauterization is the only hope after being inoculated. The public should be made familiar with the first symptoms of canine rabies, because house-dogs may inoculate by their poisonous saliva before they show distinct madness; and, moreover, people should know the erroneous nature of the popular idea that canine rabies is always characterized by fear of water. Police regulations should be enforced in winter as well as summer, and against suspected animals as well as those really sick. The owner of a rabid animal that has caused serious accidents, or inoculated a human being, ought to be prosecuted officially, in addition to being liable to suit for damages on the part of the family of the deceased.

J. B. R.

A CASE OF HEMERALOPIA FOLLOWING CATARRHAL JAUNDICE TREATED BY ALKALIES.—M. André Martin, in *Le Mouvement Médical*, 1877, No. 45, pp. 508-512, gives an interesting history of a case of this kind. A soldier had suffered with hemeralopia, but recovered in three months.

Four years subsequently he was attacked with jaundice, which was treated by emetics, rhubarb, and calomel, followed by bicarbonate of sodium. One month after the jaundice appeared, hemeralopia was observed, so that he could scarcely walk in the dark. Accurate ophthalmoscopic examinations were made, showing specially small arteries, turgescient veins, and in one eye two spots of choroidal atrophy. The patient finally recovered under the use of quinine, iron, and arseniate of sodium, in about two and a half months. The author enters upon a lengthy discussion of the views held regarding the etiology of the affection, as malaria, atmospheric variations, etc., and finally concludes that his case, which was certainly, he says, not one of malingering, depended upon malnutrition due to the preceding jaundice and the alkaline and the purgative treatment to which the patient was subjected. He objects to the name essential hemeralopia, because the ophthalmoscope will afford evidence of lesion in such cases, as a rule, and proposes the term hemeralopic retinitis.

J. B. R.

LESIONS OF THE PANCREAS IN CERTAIN FORMS OF DIABETES.—M. Lancereaux has presented some specimens to the Academy of Medicine showing lesions of the pancreas from subjects who have died of diabetic troubles (*La France Médicale*, 1877, No. 92, p. 732). He remarked that saccharine diabetes is, at least in some cases, accompanied by grave alteration of the pancreas. This form of diabetes is distinguished by a relatively abrupt beginning, by wasting, polydipsia, polyphagia, and peculiar characteristics of the alvine dejections, similar to what is seen in animals in which the pancreas has been removed or destroyed; for they, as is known, rapidly emaciate, become voracious, and die at an early period. He therefore believes there is a causal relation between grave changes in the pancreas and diabetes mellitus. The prognosis in these cases is unfavorable, and the treatment consists in avoiding diet which must be digested by the pancreatic fluid.

J. B. R.

ADMINISTRATION OF SALICYLIC ACID.—Dr. Guéneau de Mussy recommends the administration of salicylic acid by dissolving it in a syrup of gum by the aid of ten times its weight of brandy, and adding to it a little lemon-juice.—*Medical News*.

PHILADELPHIA
MEDICAL TIMES.

PHILADELPHIA, FEBRUARY 2, 1878.

EDITORIAL.

CO-EDUCATION OF THE SEXES.

IN the report of the Board of Regents of the University of Wisconsin for 1877 we find some statements which bear so directly upon the interminable discussion as to the relative capacity of the sexes for mental labor, that we deem them worthy of passing notice. One of the rules of this university, where the experiment of co-education has now been carried on for some years, requires a number of gentlemen not immediately connected with the institution to be present at the annual examinations, and to make a report thereupon to the Regents. In pursuance of this duty, their report, after alluding to the general facilities for instruction, the apparatus employed in the several departments, etc., expresses the following very important conclusions. The young women sustained the tests of examination at least as creditably as the young men, and excelled in the precision and promptitude with which they responded to questions. The Board of Visitors were, however, deeply impressed with the appearance of ill health which most of the girls presented, and it did not seem to them probable that by mere coincidence so many young women should be congregated together offering this peculiarity. The hygienic condition of the university being excellent, they were compelled to look elsewhere for the cause, and believe that they have found it in the fact that the curriculum, requiring both classes of students to be subjected to the same systematic training, makes no allowance for those periods at which women require more or less complete physiological rest. They allude to overwork as a cause of anæmia, and add, "It

is this very condition of bloodlessness which is so noticeable in the women of the university at this time: the sallow features, the pearly whiteness of the eye, the lack of color, the want of physical development in the majority, and some absolute expression of anæmia in very many, all indicate that demands are made upon them which they cannot meet."

The president of the university, in a tone of ill-concealed wrath, after thanking the Board of Visitors for not allowing their critical acumen to suffer by disuse, regretting that they have reopened a controversy which he considered closed, and remarking that "to be pushed back into the water when we have just reached shore, is trying,"—an undoubted truism,—attempts to refute their assertions.

He says, "The faculty pronounce earnestly and unanimously in favor of the maintenance of the present method."

It may not unfairly be remarked that there are but few instances in which faculties have not "earnestly and unanimously" decided against any change which lessened their prestige and diminished their classes, even when the opportunities for observing the error of their ways have been greater than in the present instance. The opinion of the Board of Visitors, *ceteris paribus*, is much more likely to be impartial and unprejudiced.

"The applications for leave of absence on account of ill health have been in greater proportion among the young men than among the young women." This may be so obviously accounted for by the modesty which would naturally prevent many of the latter from detailing their ailments to a male instructor, and particularly by the unscrupulous mendacity which the average male student evinces whenever there is to be a game of base-ball, a boat-race, or a county fair, within walking distance, that it cannot be considered a cogent argument.

The Regents, in commenting upon these

counter-reports, remark that it is not claimed that the problem of co-education has been finally determined in its relation to capacity for mental culture, and still less in its relation to the personal association of the sexes in our universities, but that, however that may be, no doubt ought to obtain as to the duty of the University of Wisconsin to maintain that higher standard of instruction by which alone it can claim an honest title to its proper rank and name. They add, "And if, unfortunately, there are students, or classes of students, unfitted by nature or preparatory training for that extent of progress and intellectual development necessary to entitle them to the honors and rewards of university education, obviously their place is elsewhere."

PROCEEDINGS OF SOCIETIES.

PATHOLOGICAL SOCIETY OF PHILADELPHIA.

THURSDAY EVENING, NOVEMBER 8, 1877.

The PRESIDENT, DR. H. LENOX HODGE, in the chair.

(Continued from page 188.)

Chronic hepatitis with enlargement. Presented by DR. JOHN GUITÉRAS.

GEORGE W., æt. 43, German, farmer, resident of Manayunk, contracted a diarrhœa during the war, which has always shown some tendency to return. Has had malaria; very probably has had syphilis; otherwise has been a very healthy man. No family history of cancer or phthisis. Admitted to the Philadelphia Hospital on September 2, 1877, with well-marked jaundice. He was somewhat emaciated; the skin was very yellow, showing about the face and neck a good deal of redness. He also presented the symptoms of itching, dark-colored urine, feeling of languor and sleepiness, and a small, slow, and feeble pulse. He was up and about.

His skin has been of the same color, with slight changes, since the beginning of February of this year. He never had jaundice before, and gives no history of biliary colic. The jaundice came on gradually, preceded by several days of diarrhœa, but apparently no gastro-duodenal symptoms. Since the existence of the jaundice his abdominal symptoms may be summed up as follows: nausea, sometimes with vomiting; flatulence, pyrosis, and, most constant of all, a sense of fulness about the epigastrium. These symptoms were

relieved at intervals by diarrhœa setting in. The stools have been at times clay-colored, at times normal. Dr. Musser's notes were carefully taken throughout the patient's illness. They show no change in the condition of the patient except slight changes of color, and aggravation or amelioration of gastro-intestinal symptoms. The diarrhœa became more constant. Some swelling of the feet was noticed at times. At times also he complained of dimness and yellow vision. The abdomen was generally distended, but no ascites could be detected. During the month of September his treatment consisted of iodide of potassium and bichloride of mercury, alternating with ipecac and bicarbonate of sodium.

October 2, there had been no improvement. He was ordered muriate of ammonia gr. xv every three hours, and cloths saturated in a solution of the same were applied over the liver. At this time the area of deep hepatic dulness extended from the fourth interspace to two inches below the margin of the thorax in the line of the nipple. There was no pain or tenderness. The margin of the liver felt smooth and resisting.

This treatment gave some relief; it certainly cleared up the skin considerably, and reduced slightly the size of the organ.

On the 10th the jaundice returned, and he was ordered jaborandi. He got an overdose of the drug, and its action was followed by much prostration. Yet there was no tendency to progressive wasting and prostration until the 15th, when he began to suffer with uncontrollable hiccough. The treatment was changed to nitromuriatic acid, strychnia, and pepsin. From the 15th to the 25th, every form of treatment was used to relieve the hiccough. The interrupted current, applied to the neck and diaphragmatic region, gave some relief. Finally, the oil of cajuput seemed to arrest the hiccough. The hiccough, the prostration, and the temperature made the diagnosis of diaphragmatic pleurisy a question of great interest.

On the 27th I noted slight pleural friction-sounds at the right base. On the 28th the proper significance was given to these sounds. My note of that day reads as follows: No pain or nausea; slight diarrhœa; pulse weak and small; tongue red and angry-looking; impaired resonance at right base posteriorly, commencing at the angle of the scapula; flatness extends from tenth interspace to the margin of the ribs; there is no alteration in the shape or movements of the chest; inspiratory sound at the right base posteriorly is slightly interrupted, feeble, and terminates with fine crackling râles. The same râles are heard at the left base, and at both places almost disappear after deep respirations.

He emaciated rapidly; the diarrhœa became uncontrollable and accompanied with much tenesmus, aggravated by hemorrhoids. These symptoms were relieved by injections

of nitrate of silver into the bowel. He fell into a semi-typhoid state, with slight wandering delirium, from which he could always be aroused, and finally died of exhaustion, November 4.

The urine contained no albumen or sugar. It was normal in amount, except when the diarrhoea was excessive. It always was high-colored, and responded to the tests for biliary salts and pigment. Leucine and tyrosine were found after slightly concentrating the urine.

Post-mortem.—The skin is decidedly yellow, as are also the internal organs. There is a slight effusion, also stained, in the peritoneal cavity. The liver weighs five pounds three ounces. Its peritoneal covering is smooth and shining, except in some places about the edges, where there are small patches of opacity, evidently due to distentions of the organ. The liver overlaps the stomach considerably, and extends to within one and a half inches of the umbilicus. The shape of the organ is not changed. The organ presents a deep-green color. The acini are not well defined; the central hepatic veins appear darker than the surrounding tissue, but the contrast is by no means distinct. The tissue of the liver is very firm, presenting slight cirrhotic contraction in some spots about the anterior edge. The section is, nevertheless, perfectly smooth. Iodine does not reveal any amyloid degeneration. The gall-bladder contains a small amount of inspissated black bile. No obstruction can be found, except at the duodenal end, in the biliary passages, though dissected some distance into the liver-substance. The swelling of the duodenal mucous membrane and some mucus present might have given rise to obstruction; but there was no dilatation of the tubes, and they were empty. There are no syphilitic cicatrices. Under the capsule one very small piece of calcareous matter was found, not imbedded in cicatricial tissue. The mucous membrane of the duodenum is congested, thickened, and covered with an abundant mucous secretion. The mucous membrane of the remaining portion of the small intestines is also congested. The large intestines show considerable thickening of the mucous membrane, are grayish in hue, and of a uniformly fungoid velvety appearance. The kidneys are healthy; the spleen enlarged and congested. All the tissues are stained with bile. The heart is healthy, save slight thickening of the aortic semilunar valves. The lungs are healthy, with the exception of hypostatic congestion of the lower lobes posteriorly. The pleuræ are not adherent.

Remarks.—One of the most interesting features of the case is the temperature. It was noted from October 21 to the time of death, as follows:

Oct. 21.—M. Temp. 100°, P. 92, R. 17. E., Temp. 98°, P. 76, R. 17.

Oct. 22.—M., Temp. 98°, P. 80. E., Temp. 103°, P. 92.
Oct. 23.—M., Temp. 95 2-5°, P. 80, R. 20. E., Temp. 100°, P. 76.
Oct. 24.—M., Temp. 101 2-5°, P. 112, R. 23. E., Temp. 96°, P. 72.
Oct. 25.—M., Temp. 93°, P. 86, R. 17. E., Temp. 101°, P. 96.
Oct. 26.—M., Temp. 95°, P. 76, R. 19. E., Temp. 94 3-5°, P. 21, R. 18.
Oct. 27.—M., Temp. 103°, P. 116, R. 30. E., Temp. 98°, P. 92, R. 18.
Oct. 28.—M., Temp. 95 1-5°, P. 84, R. 15. E., Temp. 100°, P. 96, R. 18.
Oct. 29.—M., Temp. 97°, P. 92, R. 15. E., Temp. 98 2-5°, P. 96, R. 14.
Oct. 30.—M., Temp. 97°, P. 84, R. 14. E., Temp. 98°, P. 88, R. 16.
Oct. 31.—M., Temp. 94 2-5°, P. 72, R. 14. E., Temp. 96°, P. 68, R. 17.
Nov. 1.—M., Temp. 99°, P. 92, R. 21. E., Temp. 93°, P. 72, R. 18.
Nov. 2.—M., Temp. 95°, P. 92, R. 21. E., Temp. 96 3-5°, P. 96, R. 22.
Nov. 3.—M., Temp. 91 2-5°, P. 76, R. 11. E., Temp. 91°.

With such a temperature, and with a rapid emaciation, the exclusion of suppuration became a question of interest, the more so since the hiccough and physical signs at right base pointed to diaphragmatic pleurisy,—a form of pleurisy that terminates not unfrequently in suppuration. But the temperature-sheet shows a regularity that is not characteristic of suppurative fevers. I find that every third temperature noted is pretty regularly a high one, the fall being very great in the two intervening temperatures; so that the rise and fall do not present the usual relations to the morning and evening hours. The very chronic nature of the trouble, the absence of a cause, together with the above temperature, the persistent jaundice, and passive nature of the enlargement, excluded abscess. I excluded diaphragmatic pleurisy because there was no dyspnoea, pain, or anxiety, and because the localized spots of tenderness near the xiphoid cartilage, and at the root of the neck along the course of the phrenic nerve, were absent. The râles heard at base of right lung were thought to be due to want of expansion of the lung from pressure. The hiccough might have been due to the same cause, or to central disturbance from toxæmia. The curious range of temperature may be due to an intermittent absorption of effete products from the liver, or an intermittent arrest of the oxygenating processes going on in the liver, an arrest that must influence the general temperature if we remember that in health the temperature of the organ reaches 106°. It is to be regretted that the amount of urea excreted was not observed.

I may observe that I do not believe the electric current passed along the phrenic nerve. I noticed that the diaphragm continued its normal movements, and only the muscles of the abdominal and thoracic walls were seen to contract under the influence of electricity. I believe that the shock produced by the current gave the temporary relief, and suspect that a strong current applied to the thighs would have had the same effect.

The diagnosis during life was chronic catarrhal jaundice resulting in hyperplasia of

the connective tissue. It is very rare to find such marked jaundice in the early stage of cirrhosis, or stage of enlargement, and it is probable that the catarrh of the tubes was the primary lesion. I thought during life, and think so yet, that this liver might be likened to the kidney in the second stage of Bright's disease, so far as the anatomical differences between the two glands will allow.

The jaundice and absence of involvement of other organs excluded the amyloid liver; and the passive, smooth enlargement excluded cancer. The empty and undilated tubes, the almost empty gall-bladder, show that there was no obstruction at the duodenal orifice or in the larger tubes.

Dr. TYSON said this was the first time he had ever known human urine to respond to Pettenkofer's test for bile as ordinarily directed to be applied. From the directions usually given for using this test in the books, we are led to believe that the elements need but to be added to urine containing bile to have a prompt reaction. But this is not the case. Some years ago, in making a number of experiments with this test he was only able to obtain the characteristic reactions by adding ox-bile to human urine. The test is for biliary acids, and these should first be extracted, redissolved, and tested for. Dr. T. recalled, however, a case of strangulated hernia, which was operated upon, and after recovery from the operation it was thought desirable to ascertain if the fecal matter came from the upper part of the small intestines. It was thought that if it did it would contain bile. Pettenkofer's test was employed, and responded promptly and satisfactorily.

Dr. GUITÉRAS replied that he himself was very much surprised at the result obtained in this case by the employment of Pettenkofer's test, since he had never previously, in using this test, obtained satisfactory results. There was, however, no doubt as to the complete and convincing reaction of the test in the present case; the purple band between the acid and urine and sugar was quite distinct.

Dr. LONGSTRETH said he wished to call attention to the form of cirrhosis occurring from a malarial cause; in such cases the indurative form prevailed, and the organ was usually not much reduced in size, but simply firmer and harder than normal. The color of the specimen before the Society was much darker than that found in livers of patients jaundiced from a catarrhal inflammation of the bile-ducts. This increased intensity of coloration would point to the presence in the liver-tissue as well as the blood of a pigment such as is found in chronic malarial poisoning. It could, of course, be accounted for by the presence of bile-pigment solely. He has a specimen in the museum of the Pennsylvania Hospital removed from a patient suffering from chronic malarial poisoning, with jaundice, which presents conditions similar

to the present specimen. In the specimen referred to, the three forms or degrees of cirrhosis of the liver were present, and were well illustrated by the organ, viz., simple induration, lobulated contraction, and also a few hob-nail masses. The liver was slate-colored, and there were seen also numerous black points; the spleen was diseased, and the blood contained pigment-matter.

The pathology of cirrhosis of the liver from simple catarrhal inflammation of the bile-ducts is a doubtful matter. May not the cirrhosis of the organ presented to-night be due to malarial poisoning?

Dr. TYSON thought this liver not unlike a pigmented malarial organ, and that pigment-particles would probably be found in the cells if examined microscopically.

Dr. GUITÉRAS said that he had excluded malaria because there was no history of malarial cachexia, and the patient had had no malaria since the war. The spleen was perfectly healthy, and he did not think that the deep-green color of the organ, somewhat changed since the autopsy, pointed in that direction. He suspected the microscope might not be of use in determining this question, because in cases of intense jaundice, granules of biliary coloring-matter were found in the liver-cells. He thought the slate color was not present in the specimen. Dr. G., in answer to Dr. Allen, who asked if any of the members had seen enlargement of the veins during cirrhosis of the liver, and especially those surrounding the umbilicus, replied that he attached much importance to this symptom, viz., enlargement of the veins, as an evidence of portal obstruction, especially in cirrhosis, where he had almost always found it in advanced cases. The enlargement of the veins around the umbilicus he had never noticed, though early writers speak of them as forming a distinct areola. Dr. G. replied to Dr. O'Hara that he did not feel justified in ascribing the relief of the hiccough to the use of oil of cajeput. Ten drops were given every two hours. He expected the action of this drug to be rapid, and yet the hiccough did not stop until eight or ten doses were given.

Report of the Committee on Morbid Growths.

—"The liver presented by Dr. Guitéras, upon microscopic examination, shows the cells, situated mainly at the periphery of many of the lobules, to be colored greenish yellow, increased in size, and slightly more granular than normal; also at the periphery of a few lobules the cells are seen to be enlarged and infiltrated with oil-globules. There are not seen any pigment granules, such as are found in melanotic disease due to malarial poisoning. The fibrillar connective tissue, especially that found in the interlobular spaces, is decidedly increased, and infiltrated with numerous embryonic cells. The pathological change is one of indurated hepatitis of the first stage,

or passing into the second, with a staining of the cells by biliary coloring-matter.

"November 22, 1877."

REVIEWS AND BOOK NOTICES.

LECTURES ON CLINICAL MEDICINE, DELIVERED IN THE ROYAL AND WESTERN INFIRMARIES OF GLASGOW. By DR. MCCALL ANDERSON, Professor of Clinical Medicine in the University of Glasgow. With Illustrations. 8vo, pp. 264. Macmillan & Co., London, 1877.

Another book upon practical medicine! The first impulse on receiving this work was to accord it the reception usually vouchsafed to the "eleventh child" or the "last straw," but Dr. McCall Anderson's well-known reputation as an industrious and energetic worker secured him against any hasty verdict, and an examination of the volume satisfied us that its addition to those already existing was justified. The subjects discussed are of so much importance and the lectures are of such a practical character that they are well worth reading by any physician or student engaged in the study of medicine.

They include—I. an Introductory "on the importance and method of conveying clinical instruction; and illustrations of recent progress in the field of practical medicine." It will interest the many teachers of clinical medicine in this country to know the method pursued by Prof. Anderson at Glasgow. Having a large class, he meets "the members of it formally three times a week,—namely, on Mondays, Wednesdays, and Fridays,—one of these being devoted to the exposition of selected cases in the wards, and the other two to clinical lectures in the class-room on some of the cases previously seen in the wards, in accordance with the University ordinances." Again, the class is divided on Tuesdays, Thursdays, and Saturdays into three sections,—one section accompanying the professor in his visit to the patients, while the others are instructed in rotation by the medical tutors acting under him. He remarks with regard to the latter, that this part of the work of bedside instruction could be carried on with much better effect were the medical tutors qualified men of some eminence, and not senior students only.

Lecture II. is on "Cases Illustrative of Pain as a Symptom of Disease;" Lecture III., on "Cases Illustrative of Gastric and Cerebral Vomiting;" Lecture IV., on "A Case of Hysteria;" Lecture V., "Cases Illustrative of Spinal Irritation;" Lecture VI., "The Phenomena of Embolism;" Lecture VII., "A Case of Supposed Disease of the Pons Varolii;" Lectures VIII. and IX., "The Treatment of Aneurism of the Arch of the Aorta by Means of Galvano-Puncture;" Lec-

ture X., "Aneurism of the Abdominal Aorta;" Lecture XI., "Tubercular Peritonitis;" Lecture XII., "Acute Phthisis (Galloping Consumption);" Lecture XIII., "Cases Illustrative of Mediastinal Tumors;" Lecture XIV., "A Case Illustrative of the Cirrhotic Form of Bright's Disease;" Lecture XV., "Multiple Fatty Tumors Complicated with Aneurism;" Lecture XVI., "Lupus Verrucosus—Ephidrosis Cruenta—Elephantiasis Arabum;" Lecture XVII., "Are the Vegetable Parasitic Affections of the Skin due to One or Several Parasites?"

The lectures are clearly written, plainly printed, and it is a pleasure to read them.

THE SCIENCE AND ART OF SURGERY. By JOHN ERIC ERICHSEN, F.R.S., F.R.C.S. Revised by the author from the seventh enlarged English edition. Philadelphia, H. C. Lea, 1878.

The value of Mr. Erichsen's Surgery has so long been everywhere recognized by the profession, that the announcement of the new edition is pretty much all that is left to the reviewer. The present volumes appear to be well abreast of the times, and to maintain the established fame of the work.

GLEANINGS FROM EXCHANGES.

BROWN-SÉQUARD'S TREATMENT OF EPILEPSY.—Dr. Jas. B. Ayer reports (*British Medical and Surgical Journal*) twelve cases treated by the following prescription for two years:

R Sodii bromidi, potassii bromidi, ammonii bromidi, aa ʒiij; potassii iodidi, ammonii iodidi, aa ʒiiss; ammoniæ sesquicarb., ʒi; tinct. calumbæ, fʒiiss; aquæ destillat. ad fʒviiij. M.

Full dose, one and a half drachms before each meal, and three drachms at bedtime.

Results.—In four cases very satisfactory: reduced to a single attack in forty-six months, thirty-one months, twenty-two months, and sixteen months, respectively. In five cases number and severity of attacks both diminished. In one case severity diminished, number unchanged. In two cases no change in number or severity. In eleven cases there has been marked improvement in general health and mental condition. In one case there has been a slight improvement.

PARACENTESIS THORACIS.—Dr. Henry Barnes (*British Medical Journal*, December 1, 1877) has practised this operation in eleven cases,—three of simple acute pleurisy, two of acute pleurisy occurring as a complication of enteric fever, three of subacute or chronic pleurisy, and three of empyema.

In two of the acute cases, sixty-six and fifty-seven ounces of fluid having been respectively removed, convalescence was at once established. The third case was remarkable for the pain being upon the opposite side to the pleu-

risys. Paracentesis was performed once, with great relief, but protracted treatment was required before recovery was established.

In the two cases of acute pleurisy occurring as a complication of enteric fever, paracentesis was performed three times in each case. The first was a young man aged 19, and the pleurisy came on during a very severe and protracted attack of enteric fever. The effusion was on the right side, and was of a sero-fibrinous character. The amount of fluid removed was on the first occasion forty-six ounces, on the second fifty-six ounces, and on the third one hundred and twenty-three ounces. The urgent dyspnoea was greatly relieved by the operation, and the patient finally recovered. In the second case the patient was a gamekeeper aged 43, and the fever was of a severe type. The chest-symptoms first appeared on the twenty-fourth day of the disease, and the effusion was on the left side. The fluid removed at the first operation measured fifty ounces, at the second forty-seven ounces, and at the third ninety ounces, and was always of a sero-fibrinous character. Recovery was complete.

In all of the chronic cases the result was satisfactory. In the first case of empyema paracentesis was employed twice, and the patient slowly convalesced. In the second case recovery finally followed the use of the drainage-tube with syringing with weak carbolic acid twice daily. In the last case paracentesis acted most favorably.

Dr. Barnes practises the operation in a semi-recumbent position and at the site recommended by Dr. Bowditch, prefers decidedly a capillary trocar and the bottle aspirating apparatus, obtains as much fluid as possible unless pain or other unfavorable symptom appears, and as after-treatment uses iodine externally, iodide and acetate of potassium in infusion of digitalis or a simple bitter infusion internally.

In the same number of the *British Medical Journal* is concluded a lecture by Wilson Fox on paracentesis, with tables as to mortality, which may be consulted with great advantage.

Drs. Thos. Parkes and Wm. Parker also have an article on pleuritic effusions in childhood, in which they commend the diagnostic use of the hypodermic needles followed by aspiration, entirely irrespective of pyrexia, if the fluid does not disappear in three weeks. Diuretics they have never seen do good in serous effusion into the pleura in childhood. Of blisters they are chary, on account of their tendency to produce ulceration. In empyema, so long as pus does not get fetid, repeated aspiration should be employed; when fetor is perceived, the drainage-tube should be at once resorted to, with a double opening in the chest-wall.

INTERNAL URETHROTOMY (*The Lancet*, November 24, 1877).—Mr. Lund has recently

performed his operation of internal urethrotomy in two cases of stricture at the University College Hospital. The steps of the operation are as follows. A filiform whalebone bougie is first of all insinuated through the contracted portion of the urethra, and pushed on till it reaches the bladder, and then a fine silver catheter, about equal to No. 3.5, French scale, is slid over the bougie into the bladder. The bougie is then withdrawn, and, if the instrument be in proper position, urine will escape. A steel rod is then screwed into the silver catheter, and a series of sliding tubes, on Mr. Wakley's system, is inserted, until the stricture is dilated up to No. 3 or No. 4 English. After this, Teevan's modification of Maisonneuve's urethrotome is passed, and the urethra is cut from before backwards along the roof of the strictured portion. The urethrotome is then removed, and a solid metal *bougie à ventre*, equal to No. 17 English in its thickest part, is introduced, in order to stretch or tear any fibres of the contractile tissue which may have escaped the knife. The operation may therefore be described as a combination of simple dilatation, internal section, and forcible dilatation, and will doubtless take a place among the best modes of treating small, hard, and obstinate strictures of the urethra. But, on the other hand, the success that has of late attended the various attempts to facilitate and simplify the performance of internal urethrotomy should not be allowed to obscure the important truth that a very large number of urethral strictures are best and most safely treated by means of patient and systematic simple dilatation.

LARYNGO-TRACHEOTOMY FOR THE REMOVAL OF FOREIGN BODIES (*The Lancet*, November 24, 1877).—Mr. West details a case in which he performed laryngo-tracheotomy for the removal of a coin, and gives the following directions for performing that operation, with his reasons for preferring it: the trachea above the thyroid isthmus and the cricoid cartilage are comparatively superficial; there is less danger of hemorrhage than when the trachea is opened below the thyroid, and the situation at which the opening is made is convenient for the exploration both of the trachea and the larynx.

It may be well to state that probangs should always be passed into and down the œsophagus before the windpipe is opened in any part of its course, for similar symptoms may proceed from extraneous substances in that tube as if they were lodged in the trachea or larynx, and mistakes have often arisen in consequence of this precaution not having been taken.

When the trachea is opened, if the foreign body is not driven out from the rima or through the wound by the air, as it was in my first tracheotomy case,—a child who was choked with a plum-stone,—attempts must be made to reach it with a probe or with a pair

of curved forceps; and if by these means the substance cannot be extracted, the tracheal wound must be kept open by the introduction of a canula, or a portion of the rings of the trachea may be removed by the knife. The canula must be taken out from time to time, for the purpose of being cleansed, and must not be retained too long, or it may by its pressure lead to dangerous ulceration of the trachea and of the surrounding parts.

As showing how necessary it is to keep exactly in the median line, Guersant mentions that one of the house-surgeons of the Children's Hospital, Paris, in opening the trachea, by accident injured the arteria innominata; and Desault quotes the case of a medical student who, in performing tracheotomy on a fellow-student asphyxiated by drowning, opened the carotid artery. Such accidents could only occur when the incision is prolonged much too far downwards and is allowed to deviate from the median line. Another result of too free cutting may be the opening of the œsophagus, as in a case mentioned by Sédillot: this may, however, in general be avoided by using a blunt-pointed bistoury for extending the wound first made in the trachea.

In the performance of tracheotomy I object to any of the special instruments which have been recommended for the purpose. Trocars—even the instrument introduced by Sir H. Thompson—are unsafe unless in very competent and steady hands; and there is nothing so safe as a short straight double-edged scalpel for making a clean section of the parts in the median line. Secure any vessels that may bleed during the operation as soon as they are divided, until the rings of the trachea are reached at a point just above the isthmus of the thyroid, and then, having cleared the front of the trachea and held it *in situ* with the finger and thumb or with a hook, plunge in your scalpel in its centre and cut from below upwards through the upper rings of that tube, and, if necessary or desirable, through the cricoid cartilage as well.

ABSCCESS OF THE LUNG (*The Boston Medical and Surgical Journal*, November 22, 1877).

—At a meeting of the Berlin Medical Society, Leyden calls attention to the rarity of this condition, and to the liability of its being confounded with pulmonary gangrene and subacute tuberculosis of the lungs (cheesy pneumonia). Traube has referred to the diagnostic importance of an examination of the sputum, and states that in it shreds of lung-tissue might be recognized with the naked eye, and that elastic fibres, black pigment, and occasional rust-colored crystals could be found. In gangrene, however, the shreds of pulmonary tissue are readily crushed, and elastic tissue is not present. In pulmonary tuberculosis there are no shreds to be seen. It was Traube's view that the abscess developed from a pneumonia and was preceded by an

extensive destruction of tissue. Leyden admits that the pulmonary abscess and gangrene are not sharply defined, but run into each other, and yet the recognition of the simple, bland suppuration is of the greatest importance. The clinical course of the abscess resembles rather that of subacute cheesy pneumonia than that of gangrene. He considers that there are three varieties of pulmonary abscess:

1. The abscess perforating the air-passage from without.

2. The true pulmonary abscess, which includes those due to pneumonia, the embolic and metastatic forms, and those resulting from injury to the lung, as in the penetration of foreign bodies.

3. The chronic pulmonary abscess, such as forms in chronic pneumonia, but distinct from the tuberculous cavity.

The true pulmonary abscess begins with symptoms of an acute pneumonia, which does not terminate critically on the seventh or ninth day, but the fever increases, the expectoration is retained, till in the course of three weeks an abundant purulent sputum appears, with alleviation of all the symptoms. This sputum is of the greatest diagnostic importance. It is very profuse, foamy, purulent, and liquid, of a stale, indifferent odor, although the latter may temporarily be sweet and penetrating. Shreds of lung-tissue are evident to the naked eye, as well as others to be seen only with the microscope. They are imbedded in thick yellow pus, are of a grayish-black or yellow-ochre color, and vary extremely in size. These particles contain abundant elastic tissue, at times bits of large vessels, a moderate quantity of black pigment, crystals of fat (small, pedicellate, globular forms), delicate hæmatoidine (bilirubine) crystals of an ochre-yellow or rust color. The latter crystals were always observed, though they might be few or many, and were in the form of rhombic plates or of bundles of needles. Coarse, granular micrococci are present, either motionless or moving slowly, and differ widely from the active, rod-like bacteria of pulmonary gangrene. They are not acted upon by iodine, and thus differ from the leptothrix forms in gangrene. Pus-corpuscles and pulmonary epithelium are also found.

In the chronic pulmonary abscess the sputa are purulent or muco-purulent in character. They contain elastic fibres, which are evident on microscopical examination; also occasional, small, dense, slate-colored portions of lung-tissue of a fibrous appearance. Plates of cholesterine also are often seen; likewise fatty and mucous corpuscles, the latter often containing granules of fat.

THE LYMPHATIC THEORY OF SYPHILITIC INFECTION (*The New York Medical Journal*, December, 1877).—Dr. William A. Hardaway, in an able paper on this subject, attempts to prove the following propositions: 1. That the

lymphatic vessels are the only absorbents of the syphilitic virus. 2. That the syphilitic virus is carried by the lymphatic vessels to the ganglia nearest the seat of primary lesion, where it undergoes a period of localization corresponding to the stage of secondary incubation; and that, therefore, for a certain variable space of time, the blood is not contaminated at all, and, if inoculated upon a person free from syphilis, would not prove a source of infection. He then quotes a number of writers on physiology and pathology to show that this view is in accord with the accepted theories of absorption, and says, "It is to be presumed that the application of the specific irritant of syphilis to the tissues produces the usual phenomena of inflammation with the exit of numerous white blood-corpuscles from the vessels. From our physiological and pathological knowledge of these bodies it is a just inference that the syphilitic virus becomes incorporated in their substance, and that sooner or later they make their way into the lymphatic vessels, and along them into the neighboring ganglia."

He considers induration of the syphilitic ulcer to be a purely local affair, and to consist of nothing more than a greater or less profuse proliferation of cellular elements, and, in some cases, of a true new formation of connective tissue from the infiltrated cells. He refers to the clinical history of a case of early syphilis as affording positive evidence of the manner in which the virus enters the blood: "We find that, exactly where the specific irritant comes into contact with the tissue, certain characteristic changes occur, which sometimes can also be detected in the lymphatic vessels leading to the neighboring glands, and invariably in the glands themselves, and again in the next glands, and so on, slowly and gradually, until more or less marked constitutional symptoms supervene, and we are made aware that the syphilitic poison is then being poured into the blood. If the virus were immediately poured into the blood, we should expect to see evidences of systemic disturbance at once."

In reference to the hereditary transmission of syphilis, he asserts that "the unanimous concurrence of all who have made hereditary syphilis a study, in the belief that if a mother contract syphilis in the latter part of her pregnancy the offspring will be born without taint, is a strong argument against the theory of immediate blood-absorption. The only explanation that this circumstance admits lies in the fact that the child is born before the virus has passed out of the lymphatic system into the blood; for, if its introduction into the blood were immediate, serious results would ensue to the child at whatever period of uterogestation the disease had been acquired by the mother." In reference to the relations of the chancre and chancroid, he writes, "It would appear that the secretions of hard

chancres and of secondary lesions will produce,—a, hard sores, followed by general infection; b, soft sores, not followed by general infection." Whether the chancre or the chancroid follows the application of the syphilitic virus seems to depend upon three conditions: 1, the natural tendency to pus-formation in persons free from syphilis; 2, the well-known aptitude to pus-formation in persons laboring under syphilis; 3, the almost certainty, when the purulent secretions of irritated syphilitic lesions are used, of causing soft sores, although in some cases, where irritated secretions are employed, certain of the sores thus produced may be soft and others in the same person hard, or first soft and later becoming indurated (mixed chancre). As a logical result of his views on this subject, he recommends an early extirpation of the enlarged lymphatics contiguous to the initial lesion, as a means of averting the constitutional disease.

THE MECHANISM AND TREATMENT OF PULMONARY COMPLICATIONS OF ACUTE CARDIAC DISEASE (*The Medical Record*, November 24, 1877).—Dr. Beverly Robinson, in an extremely able paper on the above subject, comes to the following conclusions. 1. Pulmonary disorders are frequently the immediate and almost necessary consequence of disordered heart-action of acute type. 2. These pulmonary complications should not be considered as being frequently of inflammatory nature, but rather as being manifestly produced by mechanical obstruction. 3. In our effort to combat effectually these secondary affections, which are often rapidly dangerous, we should make use of a remedy which will strengthen and regularize heart-action while lowering gradually and safely pulse, respiration, and temperature. 4. Quinine, in small or large doses, does not produce these results, and should, therefore, give place to a remedy which does, viz., digitalis. 5. Moderately high temperatures are not necessarily very pernicious, or of great moment, in so far as the indications of treatment are concerned. 6. Our therapeutic treatment of pulmonary complications consequent upon acute cardiac disease (endocarditis, pericarditis, myocarditis) must be guided rather by the general symptoms of disease in our patient than by one single morbid phenomenon, viz., elevation of body temperature.

RELATION BETWEEN URINARY SECRETION AND IRRITATION OF SPERMATIC PLEXUSES (*The Medical Record*, November 24, 1877).—M. Nepvue read a paper at the Havre meeting of the French Association for the Advancement of Sciences, in which he gave the results of his continued researches on the variations which the urinary secretion may undergo as a consequence of various traumas. He has arrived at the conclusion that the testis may in certain abnormal conditions (such, for example, as follow injections of iodine into the tunica vaginalis, and in neu-

rosis of the testis) be the starting-point of reflex actions affecting the urinary secretion. This reflex action, especially when caused by injections of iodine into the tunica vaginalis, is exhibited by a series of oscillations in the secretion, the first effect being oliguria, which lasts for some days, and is followed by polyuria, succeeded by a return to the normal condition. This result of the injection of iodized solutions into the tunica vaginalis may be regarded, M. Nepvue thinks, as an experiment which establishes the reality of physiological connection between the renal secretion and the irritation affecting the spermatic plexuses.

THE GLYCOGENIC FUNCTION OF THE LIVER (*The New York Medical Journal*, January, 1878).—Dr. W. H. Ford, in an article upon the influence of temperature in the transformations of glycogen and hepatic sugar, sums up our present knowledge of the glycogenic functions of the liver, as follows:

1. The induction of dextrinoid and amylaceous matter, and of sugar, from the digestive tract effects a prompt increase of glycogen in the liver-cells. Under these circumstances a freshly-made decoction of the liver is opalescent. Even in fasting carnivora glycogen is found in the healthy liver, and must therefore be formed from the elements of the blood. It is highly probable that glycogen originates in a decomposition of fibrinous or other proteinoid matter, principally brought to the liver by the vena portæ, but in part, perhaps, also by the hepatic artery.

2. Glycogen is more nearly allied to dextrine than to starch, and is converted into hepatic sugar by all agencies capable of converting dextrine into glucose, with a facility far greater than is observable for dextrine of vegetable origin. In this facile convertibility glycogen is like hepatic sugar itself.

3. A certain zymogenous agency resident in the liver or hepatic blood must be invoked as the cause of this change of glycogen into hepatic sugar,—a transformation which takes place with great ease at the temperature normal to the liver, but with far less readiness at lower temperatures. This conversion is normally in constant progress, so that the blood escaping by the hepatic veins always contains glucose in small but very constant quantity. It is *probable* that the saccharification of glycogen does not occur in the cells of the liver, but only begins either in the cellular interspaces or in the radicles of the hepatic veins. Even systemic blood is able to saccharify glycogen at the temperature of the body.

4. The glucose thus constantly formed is rapidly borne away by the blood towards the lungs. If the animal be in digestion its quantity is considerably greater than usual, and much of it escapes through the left side of the heart into the general circulation. This seems to be the case habitually with herbivorous animals, which are more or less in digestion at all times; but in fasting carnivora, most of

the sugar is destroyed in the lungs, though a certain very small portion may be regarded as normally present in the systemic blood, having escaped the peculiar decompositive influences of the pneumo-cardiac circulation. It is here that glucose is chiefly destroyed, though it finally disappears in the blood-mass, perhaps in consequence of repeated transits through the lungs; at least it never appears normally in any of the secretions.

INJECTIONS OF CARBOLIC ACID IN HEMORRHOIDS (*Toledo Medical and Surgical Journal*, November, 1877).—Dr. J. H. Pooley reports three cases in which he has injected into swollen and inflamed hemorrhoids a strong solution of concentrated carbolie acid. About five or six drops were used, care being taken to insert the needle-point vertically and carry it well into the centre of the tumor. The immediate effect was a shrinking, hardening, and whitening of the tissues, with a feeling of numbness, but an almost instant relief from pain. In a few days the entire mass sloughed off, and at the end of a week or ten days recovery was complete. Dr. Pooley believes that the use of the weak acid instead of the concentrated would render the occurrence of embolism more possible, and suggests that the severe spreading inflammation which has been said to follow this plan of treatment might be due to the oblique insertion of the needle and the consequent conveyance of the acid into the areolar tissue around the tumor, rather than into the pile itself.

MISCELLANY.

HEADS AND HATS.—A scientific inquiry lately made by Dr. Delaunay among the hatters of Paris offers some curious results. Accepting it as true that the capacity of the cranium and development of the brain are proportional to the external volume of the head, also that the intelligence is proportional to the volume and weight of the brain, he shows, *inter alia*, that certain families develop like individuals,—that is, they have a period of growth, then a stationary period, then a period of decrease, previous to extinction. In families in the first period the head enlarges from generation to generation. The citizens who wrought the Revolution of 1789 had bigger heads than their fathers. On the other hand, in families that are nearing extinction the head grows smaller. The sons of the present ruling families in France have such small heads, according to the author, that they require hats specially made for them. Among certain families newly risen from the common people the head increases from generation to generation. The wide-brimmed hats—bolivars—worn by the Republicans from 1830 to 1848 were very capacious. The quarter in which are the largest heads in Paris

is that of the schools. The hatters of the Faubourg St. Germain say they only fit fine heads. The Polytechnicians have larger heads than the St. Cyrians, and the students of the normal school larger than those of St. Sulpice, etc. The members of the clergy present a peculiar feature in these statistics. "In general," says M. Delaunay, "men from thirty to forty years of age have a larger head than those from twenty to thirty. Not so with ecclesiastics, for their heads cease to grow at about twenty-five. The curés, bishops, archbishops, etc., have no larger heads than the students of the large seminaries." The foregoing appears in our contemporary *Public Opinion*.—*Medical Examiner*.

EXCISION OF THE LARYNX.—This formidable operation has been successfully performed in Glasgow by Dr. Foulis. Thyrotomy had previously been performed twice, and a recurrent growth removed. At length it was decided to remove the whole larynx. The patient consented, and the operation was done. The patient made a good recovery, and could dispense with artificial feeding in a fortnight. As soon as the wound contracted enough, a vulcanite tube was fitted in with a vibrating reed, which enables the patient to speak in a monotonous but loud voice.—*The Doctor*.

GURJON OIL IN GONORRHOEA.—M. Vidal has introduced into France the use of Gurjon oil. He finds it an excellent substitute for copaiba, and in a recent thesis M. Deval corroborates this by a number of cases observed in M. Vidal's own clinic, and some others in M. Mauriac's. The dose advised should not exceed one drachm in the twenty-four hours. This amount will keep the bowels freely open. It is mixed with gum and some infusion. Its action is more rapid than that of copaiba, and it does not taint the breath. It may be used locally in vaginitis, etc. It has not provoked any eruption. M. Vidal has also employed it in leprosy.—*The Doctor*.

DEATH-RATE IN VARIOUS CITIES IN EUROPE.—In a recent number of the *Gazette Médicale*, the following figures are published, extracted from the *Journal Officiel* for the years 1872-5. 1. Births.—There were 16.27 per 1000 inhabitants in France, 34.23 in Great Britain, 36.65 in Italy, 39.71 in Germany, 40 in Austro-Hungary, 47.20 in Russia. 2. Mortality.—There were 21.35 deaths per 1000 in Great Britain, 22.46 in France, 27.72 in Germany, 30.40 in Italy, 34 in Russia, 38.96 in Austro-Hungary. 3. Proportion of births to deaths.—By the two tables above, it seems that the excess of births over deaths per 1000 is 13.20 in Russia, 12.88 in Great Britain, 11.90 in Germany, 6.25 in Italy, 3.81 in France, and 1.04 in Austro-Hungary. Thus, though France occupies the second rank with respect to her slight mortality, she is last but one among the great powers as regards the excess of births over deaths.—*The Doctor*.

DUHRING'S ATLAS OF SKIN DISEASES.—The publishers of Dr. Duhring's "Atlas of Skin Diseases" announce that the lithographic plates for the edition of Part III. were completed when, upon a critical examination of the edition, some imperfections were noticed which demanded the suppression of the entire issue. A new edition of Part III. is now printing, and will be pressed through with as much rapidity as due regard for the perfection of the work will admit of.

NOTES AND QUERIES.

HOSPITAL STEWARDS, U. S. ARMY.

TO THE EDITOR OF THE PHILADELPHIA MEDICAL TIMES: SIR,—In thanking you for your very generous editorial article upon our grievances in your issue of December 8 last, which I have just seen, permit me to correct one or two little points which might otherwise give the impression that we were attempting to create sympathy by mis-statements.

The hospital steward is outranked by the regimental non-commissioned staff-officers, not by "all" the regimental non-commissioned officers.

He holds his warrant from the *Secretary of War*, not "from the President."

When disabled or killed, the pension, at the same rate as any other *enlisted man*, is granted, i.e., Soldier's Home, or a pittance.

The concluding two paragraphs of your article describe precisely what most of the stewards are asking for, and could not be improved on by any amount of writing; viz., that if Congress will not grant brevet commissioned rank to us, "a law may be enacted which shall assign a rank at least equal to that of the highest non-commissioned officer, a pay of fifty dollars a month, a pension for disability produced in the service, and finally open a possible passage, on proof of fitness by examination, up to the Medical Staff."

The "proposition" lately circulated throughout the service embracing all these points was purposely written in full detail to avoid the necessity of future "interpretations," and in asking for only the rank of the highest non-commissioned officer it was believed to be best so to limit it, because so unlikely that the economical Congresses of present times would grant commissioned rank even although well earned. The Signal Service, however,—originally an offshoot from the Medical Staff of this army, and now receiving much assistance still in its weather reports from the Stewards,—has been granted one commissioned promotion annually from its ranks; our "proposition" asks modestly for one in three years.

If you will kindly insert these remarks, my dear Mr. Editor, you will confer a great favor on the corps.

Hospital Steward, U. S. Army.

OFFICIAL LIST

OF CHANGES OF STATIONS AND DUTIES OF OFFICERS OF THE MEDICAL DEPARTMENT U. S. ARMY FROM JANUARY 13, 1878, TO JANUARY 26, 1878.

KINSMAN, J. H., CAPTAIN AND ASSISTANT-SURGEON.—Ordered before the Army Medical Board, New York City, for examination for promotion, and on its completion, return to his proper station. S. O. 9, A. G. O., January 10, 1878.

CALDWELL, D. G., CAPTAIN AND ASSISTANT-SURGEON.—Relieved from duty in Department of Texas, to proceed to New York City, and report on arrival by letter to the Surgeon-General. S. O. 9, c. s., A. G. O.

BENTLEY, E., CAPTAIN AND ASSISTANT-SURGEON.—Ordered before the Army Medical Board, New York City, for examination for promotion, and on its completion return to his proper station. S. O. 9, c. s., A. G. O.

BARNETT, R., FIRST-LIEUTENANT AND ASSISTANT-SURGEON.—Assigned to temporary duty in the Medical Director's office, S. O. 8, Department of the Gulf, January 14, 1878, and relieved and assigned to temporary duty at Little Rock Barracks, La., during absence of Assistant-Surgeon Bentley. S. O. 10, Department of the Gulf, January 18, 1878.

SPENCER, WM. G., FIRST-LIEUTENANT AND ASSISTANT-SURGEON.—Assigned to duty as Post-Surgeon at Fort Townsend, W. T. S. O. 4, Department of the Columbia, January 7, 1878.